

Table 5. Informational documents provided to the Task Force

15. Detail Cooperative Water Program project descriptions for the Colorado, Arizona, Florida, and New York Districts for projects that were active in FY1998 and/or FY1999
16. A list of Cooperative Water Program project titles in all Districts for all projects that were active in FY1998 and/or FY1999

The WRD memorandums listed in table 5 are presented in the Appendix, Section F, [://water.usgs.gov/pubs/circ/circ1192/appendix/f/index.html](http://water.usgs.gov/pubs/circ/circ1192/appendix/f/index.html).

Decision-Making Process

The Task Force accomplished much of their initial decision making through the subgroups. The subgroups were tasked with developing findings and recommendations related to their area of emphasis. The findings and recommendations were based on the synthesis of a wide range of information the Task Force received, such as the informational documents list in table 5, the documents provided in the Appendix, and the verbal input received from the panel discussions. At the New York and Chicago meetings, each subgroup presented their preliminary findings and recommendations to the entire Task Force for comment, revision, and acceptance or rejection. The resulting findings and recommendations all have the consensus acceptance and support of the entire Task Force. These consensus findings and recommendations are presented in the section “Review of the Cooperative Water Program.”

REVIEW OF THE COOPERATIVE WATER PROGRAM

The Task Force divided its efforts into several areas of focus. Subgroups were formed to study (1) the “Mission” of the Cooperative Water Program, (2) the “Prioritization” of project selections and “Conduct of Work”, and (3) the “Products” produced through the Cooperative Water Program.

Mission

The subgroup studying the Mission of the Cooperative Water Program began by investigating the Mission of the USGS and the WRD. The Mission of the USGS is “...to serve the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and min-

eral resources; and enhance and protect our quality of life” (U.S. Geological Survey, 1999a).

The Federal government has a clear responsibility and interest in cooperating with State, Tribal, regional and local governments on water-related issues. The national interest is a combination of broad, regional to national concerns and the aggregate of common State, Tribal, and local interests. Examples of broad, regional to national concerns include regional, national, and global changes in climate and related changes in ground-water levels, stream flows, and water quality; predicting and analyzing the impacts of water-related hazards (for example, floods and droughts); and scientific understanding of how ground-water and surface-water systems function and how human activities impact these systems. These national concerns require the acquisition and maintenance of long-term data sets and the development of interpretive tools. Examples of aggregated common State, Tribal, and local interests are concerns about water availability for municipal, industrial, agricultural, and ecological needs; water quality for domestic and other uses; and impacts of floods, subsidence, and other hazards.

The document, *Strategic Directions For The Water Resources Division, 1998–2008* (U.S. Geological Survey, 1999b) establishes the principles that will guide the WRD during 1998–2008. In addition to considering changes in the program, the *Strategic Directions* identified the mission, activities, and success factors of the WRD applicable at the time and for conditions that are likely to occur during the next decade. The mission of WRD, as defined in the draft document, is “to provide reliable, impartial, timely information that is needed to understand the Nation’s water resources.” The WRD mission Statement goes on to say “WRD actively promotes the use of this information by decision-makers to: (1) minimize the loss of life and property as a result of water-related natural hazards, such as floods, droughts, and land movement; (2) effectively manage ground-water and surface-water resources for domestic, agricultural, commercial, industrial, recreational, and ecological uses; (3) protect and enhance water resources for human health, aquatic health, and environmental quality; and (4) contribute to wise physical and economic development of the

Nation's resources for the benefit of present and future generations."

The WRD mission objectives are supported by six primary activities and several success factors, which have been and will continue to be critical to the current and future success of WRD. The *Strategic Directions* document includes WRD's historical commitment to providing impartial, credible, and excellent science that is applied to issues relevant to water-resources management, environmental protection, protection from water-related hazards, and other public policies. In many ways, it does commit WRD to being all things to all people as it pursues its mission and mission objectives. The 10-year strategic direction plan basically states that WRD will continue its traditional activities and maintain its primary strengths while improving its success by establishing priorities, accomplishing the things necessary to best serve the Nation and to do them very well.

There are several attributes that make the Cooperative Water Program unique, and the Task Force believes recognition of these qualities should be included in a Cooperative Water Program Mission Statement.

- The Cooperative Water Program has contributed to water-resources knowledge for more than 100 years. From its earliest days, the Cooperative Water Program has been responsible directly for the development of procedures for streamgaging, concepts of surface-water and ground-water flow, and analytical techniques for investigations of water quality. The Cooperative Water Program has acknowledged the keen shared-interest of Federal, State, Tribal, and other governmental agencies in appraising the Nation's water resources and seeking solutions to water-related problems. The Cooperative Water Program accommodates the diverse perceptions of approaches, needs, and priorities of these many agencies through joint planning and funding of systematic studies of water quantity, quality, and use on a national basis.
- The fundamental characteristic of the Cooperative Water Program is that State, Tribal, and other governmental agencies provide at least one-half the funds. The matched-funding arrangement is one of the reasons water-management agencies utilize USGS expertise for information and studies of water quantity, quality and use. For the majority of Cooperators, the 50:50 matching is most appropriate for their needs.
- The Cooperative Water Program products have been used for water planning, administrative, management, and regulatory responsibilities of cooperating partners and stakeholders. The need for water information is critical to improving the management of existing water resources.
- Having the USGS quality assure the work results in consistent techniques of data collection and archiving, with the information stored in a common data base readily available to all. The knowledge gained in the interpretation of the data collected is published and added to the body of information about the hydrology of the Nation. Parties on both sides of disputes generally accept data collected by and the results of studies by USGS.
- Cooperators actively seek participation in the Cooperative Water Program because of the high level of scientific knowledge, objectivity, and technical expertise that the USGS provides. There is a willingness and openness of USGS to share experiences and technical expertise with Cooperators.

Prioritization

The *Strategic Directions for the Water Resources Division, 1998–2008*, States that the WRD has a responsibility to look into the future and to anticipate emerging needs in the water-resources field. This outlook does not differ significantly from the vision used at the inception of the Cooperative Water Program. What has changed, though, is the world within which the WRD operates. As opposed to 100 years ago, there are many more institutions and enterprises offering expertise within the water-resources environment. Because of this situation, it is vital that the WRD focus its efforts on truly meeting the letter and intent of its mission to address issues of national and regional significance.

The *Strategic Directions* document identifies nine water-resources issues needing increased emphasis during 1998–2008:

- Effects of urbanization and suburbanization on water resources;
- Effects of land use and population increases on water resources in the coastal zone;
- Drinking water availability and quality;
- Suitability of aquatic habitat for biota;
- Waste isolation and remediation of contaminated environments;
- Hydrologic hazards;

- Effects of climate on water-resources management;
- Surface-water and ground-water interactions as related to water-resource management; and
- Hydrologic system management, including optimization of ground water and surface water.

The Cooperative Water Program will be expected to play a key role in the examination of these issues as partnerships are created with other Federal agencies, Water Resource Research Institutes, the academic community, Tribes, local governmental agencies, and members of the large private sector. The WRD cannot lose sight of the fact that one of the primary functions of the Cooperative Water Program is to gather the fundamental data that will be necessary to address these nine emerging issues and other water-related issues as they arise.

Conduct of Work

Traditionally, almost all work performed under the Cooperative Water Program was done by USGS scientists and technicians. This arrangement was designed to enhance quality control, provide national consistency in data collection and methods of analysis, and provide a stable core of experienced water scientists nationwide. This practice evolved in part from an era when the WRD employed most of the trained personnel in the world that were experienced in collecting water-resources data. Over the past 40 years, however, there has been a dramatic increase in the number of individuals receiving training in water-resources related science, the capabilities and use of sophisticated data-collection equipment, and the capabilities and use of hydrologic and hydrogeologic modeling.

Due to rising travel costs and the difficulty of maintaining small isolated work locations, it is incumbent on the WRD to investigate all means possible to provide increased efficiencies while controlling cost. This may occur through the increased use of remote sensing, use of personnel from outside the USGS, and/or developing quality assurance (QA) and quality control (QC) procedures that will allow acceptance of data from third-party sources.

Regardless of the methods employed by the WRD, it is vital that, above all else, the USGS maintain its reputation for providing correct, unbiased data. If this reputation were impaired, the WRD's ability to be a significant contributor in the water-resources field would be seriously impacted.

Products

In general, the products of the program are well balanced with respect to achieving the needs of the Cooperators. Products made possible by the Cooperative Water Program are well regarded, credible, reliable, unbiased, and generally of excellent quality (for example, technical correctness, thoroughness, graphics, innovation, and use of new technologies, such as the Internet). However, the Task Force does offer suggestions (see "Findings and Recommendations" section) for improvement in several areas. The ability of the USGS to share information and products generated by the Cooperative Water Program, either free of charge (for example, models and data) or for nominal cost (certain publications), is a strong benefit of the program to Cooperators and other users.

Although program products are of high quality, achieving that level of excellence is inherently time consuming. Timely issuance of some products (for example, in adherence to deadlines in agreements), particularly interpretive project final reports, has been and remains a significant problem in the program. However, USGS staff has made significant strides to correct this important problem, in part, by revising the peer-review process and establishing review authority at the regional and District level.

FINDINGS AND RECOMMENDATIONS RESULTING FROM THE REVIEW OF THE COOPERATIVE WATER PROGRAM

The findings and recommendations that follow have the consensus acceptance and support of the entire Task Force. These findings and recommendations are organized in this section as answers to questions raised by the ACWI in the Terms of Reference for the Task Force. The Cooperative Water Program is vital to the Nation in terms of assuring adequate quantity and quality of water for a wide variety of uses, mitigating the impacts of floods and other water-related hazards, and understanding short-term and long-term changes in water resources. Nonetheless, the Task Force finds that there are opportunities to improve the Cooperative Water Program and makes recommendations in the following areas:

- Mission;
- Priorities for Funding;
- Funding Levels;
- A National Streamgaging Program;